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Batch C

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Roll No.41

EXPERIMENT NO.8

Aim: To establish connection between server client using sockets.

Theory:

What is socket programming? Socket programming is a way of connecting two nodes on a network to communicate with each other. One socket (node) listens on a particular port at an IP, while other socket reaches out to the other to form a connection. Server forms the listener socket while client reaches out to the server. They form the backbones of web browsing.

The exchange of information between client and server is summarized in the above diagram. A server has a bind() method which binds it to a specific ip and port so that it can listen to incoming requests on that ip and port. A server has a listen() method which puts the server into listen mode. This allows the server to listen to incoming connections. And last a server has an accept() and close() method. The accept method initiates a connection with the client and the close method closes the connection with the client.

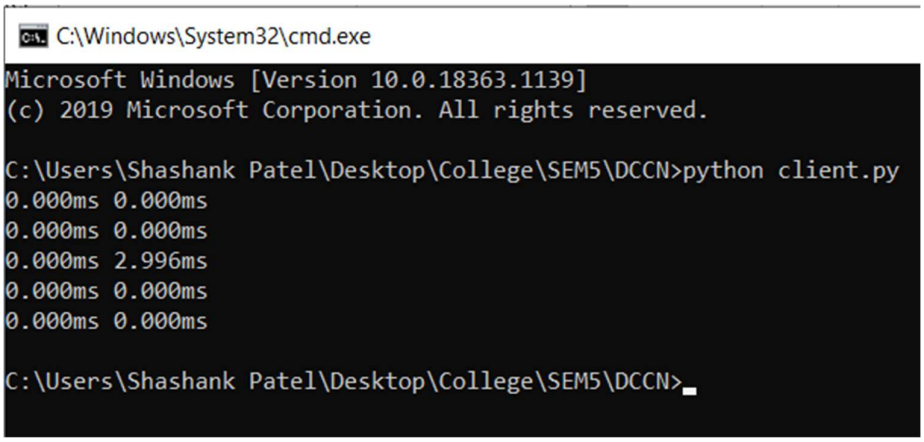
Code:

```
#server.py

import socket


with socket.socket(socket.AF_INET, socket.SOCK_DGRAM) as s:
  s.bind(('localhost',12345))
  while True:
    data, addr = s.recvfrom(1024)
    print('Connection w address',addr)
    s.sendto(b'',addr)


#client.py

import socket

from time import time


addr = socket.getaddrinfo(
  'localhost', 12345,
```

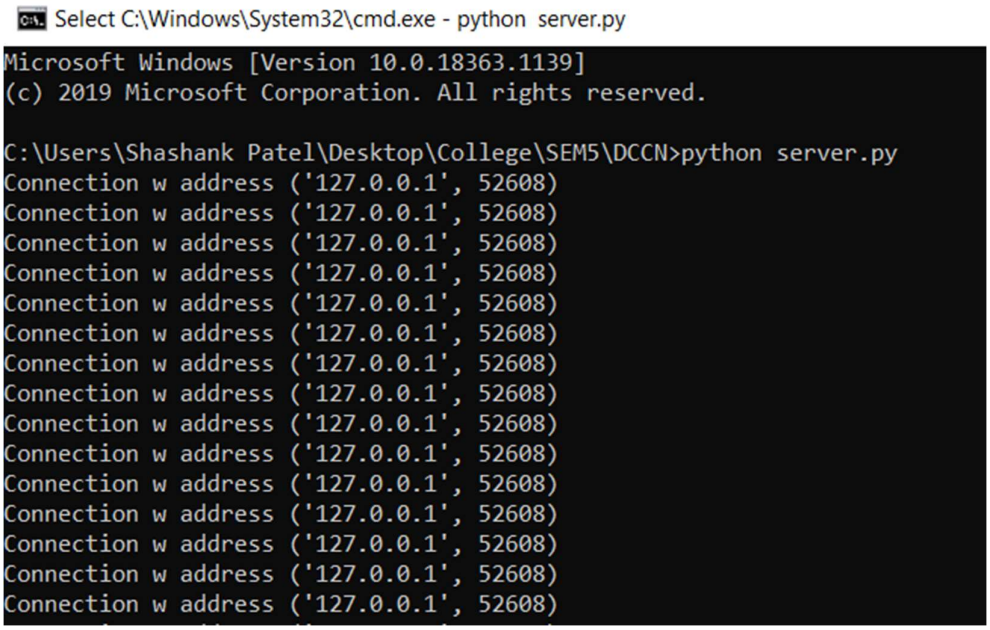
```
  socket.AF_INET, socket.SOCK_DGRAM)[0]
with socket.socket(*addr[:3]) as s:
  s.connect(addr[4])
  for i in range(500):
    t1 = time()
    s.send(b'')
    t2 = time()
    s.recv(1024)
    t3 = time()
    if i % 100 == 0:
      print('{:.3f}ms {:.3f}ms'.format((t2 - t1) * 1000, (t3 - t2) * 1000))
```

Output:

client side:



server side:



Conclusion: I understood the basics of socket programming and established a simple connection between client and server using the same.